

PKN

Product Knowledge Network

*Everything you need to know
about nonstick-coated
houseware products — FREE.*

Application Methods

There are several ways of applying nonstick coatings, each of which has different features, benefits, advantages and disadvantages.

1. Spray
2. Coil
3. Curtain
4. Roller
5. Powder
6. Arc Spray



COATING
INFORMATION



Spray

How it works: Wet coating is loaded into a spray gun and, under pressure, atomized as it is sprayed onto the surface of the item. This is done by either handheld spray guns or automated with a grouping of spray guns controlled to spray as pans pass by them on the production line.

Uses

- Moderate, upper-moderate and gourmet-market-level cookware and bakeware.
- Cookware interiors, exteriors, and handles.

Application Methods

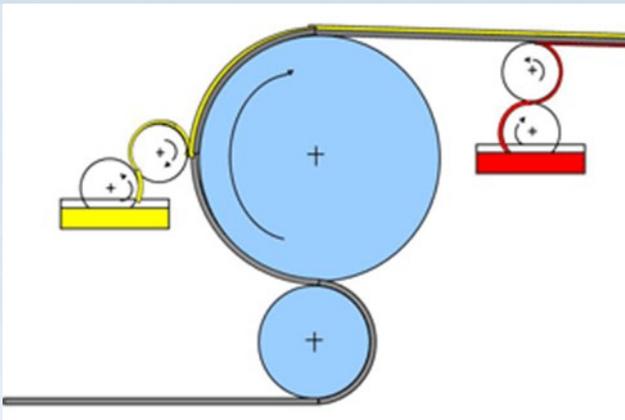
- Bakeware.
- Small electrics, gadgets, cutlery.

Advantages

- **Durability:** Because the coating is atomized, it is applied to the surface of the pan in microscopic droplets which, when cured, create a bit more dense and more durable coating.
- **Aesthetics:** Properly sprayed products have a smoother, cleaner appearance.

Disadvantages

- **Overspray:** Typically, 35% to 50% of the coating is lost during application.
- **Slow production:** Even the best automated spray lines can process no more than 1,500 pieces per hour — half that of other application methods.



Coil

How it works: A roll ("coil") of metal is coated and cured as it continuously moves through the coil coater, which consists of a high-temperature oven and other processes. Once coated and cured, the metal is rerolled, pressed, and shipped to the manufacturer, where the final product is formed.

Uses

- Best suited to a variety of metal gauges for bakeware.

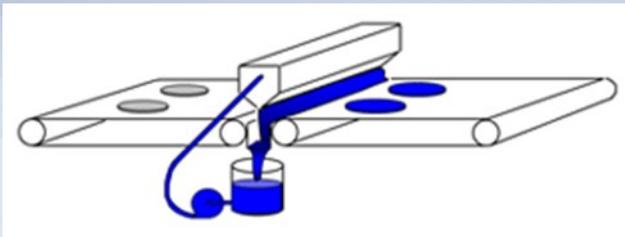
Application Methods

Advantages

- Efficiency: 98%; no overspray.
- Cost efficient: Minimum personnel and investment for manufacturing.
- Uniformity: Coating application is even, reducing the chance of drip marks and discoloration.

Disadvantages

- Waste: Coated scrap has little value.
- Limited colors: Color matching is difficult with the coil method.



Curtain

How it works: Flat metal blanks are placed on a conveyor belt which carries them through a thin, descending "curtain" of coating onto another coater belt to be carried away for curing. Coating that does not fall on the metal falls through an opening into a trough and is pumped back into the curtain process.

Uses

- Promotional, opening-price-point and moderate market levels.
- Cookware: Interiors and exteriors.
- Bakeware.
- Small Electronics.

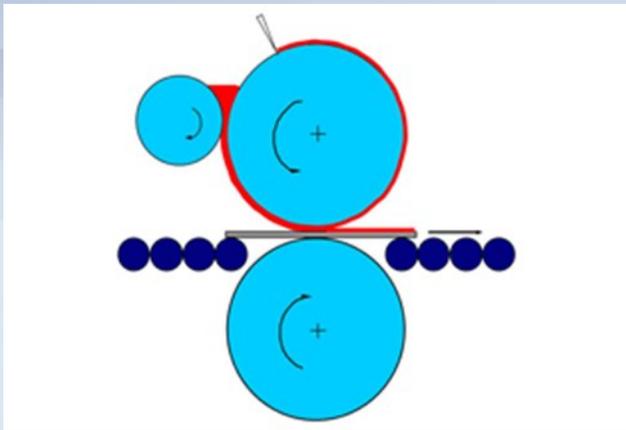
Advantages

- Speed: This system can coat from 3,000 to 4,000 pieces per hour.
- Minimum personnel required.
- Virtually no waste: Since the small amount of unused coating is cycled back into the system, this method wastes less coating than any other.
- Aesthetics: The only non-spray process that imparts a smooth, glossy finish, with no track marks.
- Flexibility: Disks can be as thin or as thick as specifications require.

Application Methods

Disadvantages

- Potential coating problems: Conventional coating formulae do not work in the curtain coater. However changes Whitford has made to its coatings have improved their performance in curtain coating application.
- Waste: Coated scrap has little value.
- Specialized equipment is required.



Roller

How it works: metal disks are passed between two elastomeric rollers, one of which is kept wet with coating which is rolled onto the disk, then carried away on a belt to be cured. After the curing process, the disks are shaped into the desired forms.

Uses

- Promotional, opening-price-point levels.
- Cookware: Interiors and exteriors.
- Bakeware.
- Small Electronics.

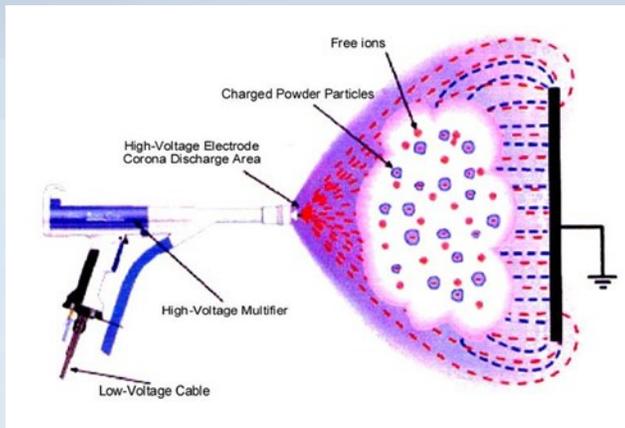
Advantages

- Speed: Capable of coating 3,000 to 4,000 pieces per hour.
- Transfer efficiency: Virtually all of the coating material is used on the disk, which means little waste.
- Uniform coating application.

Application Methods

Disadvantages

- **Aesthetics:** The pressure from the rollers can create small striations or ridges that leave the surface in a roughened form (such as tracks left by a paint roller). The tracks are visible and make a smooth glossy finish impossible to achieve.
- **Performance:** The final coating is thin, and the ridges reduce coating life since kitchen instruments tend to wear them off quickly when scraped across the coated surface of the pan.
- **High equipment cost:** Since the mechanics of roller coating "squeeze" the coating onto the surface, it is difficult to achieve proper film thickness in one or two coats. So, the process must be repeated up to five times to arrive at a reasonable coating thickness, which means more capital equipment than other processes.



Powder

How it works: It is applied via electrostatic spray, which creates an attraction between the powder and the substrate to be coated. The part is then heated, melting the powder and fusing it to the surface.

Uses

- Applications for which excessive overspray is unavoidable, such as grill grates and gadgets.

Advantages

- **Improved transfer efficiency:** 25-50% less coating is lost compared to air/liquid spray.
- Coating overspray can be reclaimed if cleanliness standards are maintained.

Application Methods

Disadvantages

- Problem penetrating deep recesses.



Arc Spray

The Excalibur arcspray process uses two wires of special grade stainless steel, which are melted by an electric arc. The molten material is then atomized by compressed air and propelled towards the substrate to be coated. Once the particles hit the substrate, they cool, harden and bond to the surface.

Uses

- Stainless-steel, gourmet-level cookware

Advantages

- Surface resists marring and gouging by metal cooking utensils while maintaining its appearance and functional properties.
- Outstanding coating adhesion.

Application Methods

Disadvantages

- Higher cost than all other coating methods, due to the additional manufacturing step, materials and required equipment.
- Requires a highly skilled applicator that is experienced in arc spray.

This information has been created by the Retail Marketing Team at Whitford. The Product Knowledge Network (PKN) offers you everything you need to know about nonstick-coated housewares products — all for FREE.

For more information, contact us at retail@whitfordww.com, visit us online at productknowledge.com or scan this QR code.



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